

**Economic and Market Impact Estimates for the  
Proposed Crystal Springs Development in Annapolis, Maryland**

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**Prepared by:**



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## **Introduction**

During the first half of 2016, a project team from the Business, Economic, and Community Outreach Network (BEACON), of the Franklin P. Perdue School of Business at Salisbury University, conducted an economic, employment, and fiscal impact assessment as well as a market impact analysis of the proposed Crystal Spring Development in Annapolis, Maryland for the City of Annapolis.

As part of this study, a BEACON team prepared economic, employment, and fiscal impact estimates of the proposed Crystal Spring Development. These benefits were then compared to the estimates of the cost of public services for the proposed project. Finally, the BEACON team assessed the impact of the proposed project on retail activity and retail vacancies in the following surrounding business markets:

- Forest Drive Zone
- Downtown Zone
- Eastport Zone
- West Annapolis Zone
- Outer West Street Zone
- Inner West Street Zone

## **Market Area**

The market area for the study is designated by three concentric circles with radii of one and a half, three, and five miles with the intersection of Forest Drive and Crystal Springs Farm Drive (Latitude 38.966 and Longitude -76.515) forming the center point. A Map of the Market Area is presented in Map 1, on page 2. A brief demographic profile of the study area is presented in Table 1, on page 3.

## **Study Assumptions**

The cost and impact estimates for the proposed Crystal Spring Development were developed on the basis of a number of assumptions. The operational assumptions used are presented below in Table 2, on page 4. These assumptions have been developed in consultation with the developers of the project. The construction cost estimates used are presented in Table 3, also on page 4. These estimates have been developed by the BEACON team in consultation with the developer of the project and have been validated using construction cost estimation software

## MAP 1:

### Map of the Market Area



TABLE 1:

## A Brief Demographic Profile of the Study Area



## Executive Summary

## CRYSTAL SPRINGS

Rings: 1.5, 3, 5 mile radii

	1.5 mile	3 mile	5 mile
<b>Population</b>			
2000 Population	26,507	61,276	94,603
2010 Population	29,115	65,665	102,629
2016 Population	30,516	68,367	106,589
2021 Population	31,912	71,186	110,963
2000-2010 Annual Rate	0.94%	0.69%	0.82%
2010-2016 Annual Rate	0.75%	0.65%	0.61%
2016-2021 Annual Rate	0.90%	0.81%	0.81%
2016 Male Population	48.7%	50.6%	50.0%
2016 Female Population	51.3%	49.4%	50.0%
2016 Median Age	36.5	37.6	40.9

In the identified area, the current year population is 106,589. In 2010, the Census count in the area was 102,629. The rate of change since 2010 was 0.61% annually. The five-year projection for the population in the area is 110,963 representing a change of 0.81% annually from 2016 to 2021. Currently, the population is 50.0% male and 50.0% female.

<b>Households</b>			
2000 Households	10,577	24,391	37,142
2010 Households	11,395	26,040	40,557
2016 Total Households	11,790	26,919	41,781
2021 Total Households	12,267	27,991	43,377
2000-2010 Annual Rate	0.75%	0.66%	0.88%
2010-2016 Annual Rate	0.55%	0.53%	0.48%
2016-2021 Annual Rate	0.80%	0.78%	0.75%
2016 Average Household Size	2.57	2.33	2.41

The household count in this area has changed from 40,557 in 2010 to 41,781 in the current year, a change of 0.48% annually. The five-year projection of households is 43,377, a change of 0.75% annually from the current year total. Average household size is currently 2.41, compared to 2.38 in the year 2010. The number of families in the current year is 25,491 in the specified area.

	1.5 mile	3 mile	5 mile
<b>Median Household Income</b>			
2016 Median Household Income	\$75,745	\$84,381	\$91,330
2021 Median Household Income	\$82,570	\$92,952	\$101,438
2016-2021 Annual Rate	1.74%	1.95%	2.12%
<b>Average Household Income</b>			
2016 Average Household Income	\$100,775	\$112,269	\$121,974
2021 Average Household Income	\$108,833	\$122,412	\$133,285
2016-2021 Annual Rate	1.55%	1.74%	1.79%
<b>Per Capita Income</b>			
2016 Per Capita Income	\$39,490	\$45,801	\$49,083
2021 Per Capita Income	\$42,396	\$49,622	\$53,321
2016-2021 Annual Rate	1.43%	1.62%	1.67%
<b>Housing</b>			
2000 Total Housing Units	11,101	25,810	39,403
2000 Owner Occupied Housing Units	5,875	14,862	26,287
2000 Renter Occupied Housing Units	4,702	9,529	10,855
2000 Vacant Housing Units	524	1,419	2,261
2010 Total Housing Units	12,476	28,869	44,664
2010 Owner Occupied Housing Units	6,084	15,384	27,936
2010 Renter Occupied Housing Units	5,311	10,656	12,621
2010 Vacant Housing Units	1,081	2,829	4,107
2016 Total Housing Units	13,088	30,206	46,489
2016 Owner Occupied Housing Units	5,865	14,969	27,542
2016 Renter Occupied Housing Units	5,925	11,951	14,239
2016 Vacant Housing Units	1,298	3,287	4,708
2021 Total Housing Units	13,653	31,459	48,322
2021 Owner Occupied Housing Units	6,106	15,552	28,535
2021 Renter Occupied Housing Units	6,161	12,439	14,841
2021 Vacant Housing Units	1,386	3,468	4,945

Currently, 59.2% of the 46,489 housing units in the area are owner occupied; 30.6%, renter occupied; and 10.1% are vacant. Currently, in the U.S., 55.4% of the housing units in the area are owner occupied; 32.9% are renter occupied; and 11.7% are vacant. In 2010, there were 44,664 housing units in the area - 62.5% owner occupied, 28.3% renter occupied, and 9.2% vacant. The annual rate of change in housing units since 2010 is 1.80%. Median home value in the area is \$462,908, compared to a median home value of \$198,891 for the U.S. In five years, median value is projected to change by 1.00% annually to \$486,407.

and historical data for construction costs for Anne Arundel County. Assumptions for the retail and hospitality operations for the proposed Crystal Springs Development are presented in Table 4, on page 5. These assumptions were developed by the BEACON team based on data provided by the developer of the project, the City of Annapolis, Anne Arundel County, the State of Maryland, and ESRI reports (presented in the Appendices A1 through A7). In addition, the BEACON team used detailed Census data (Appendix A8) and a Market Profile (Appendix A9) to further refine these assumptions. Table 4, on page 5 lists other assumptions used for the study.

**TABLE 2:**

**OPERATIONAL ASSUMPTIONS FOR THE PROPOSED CRYSTAL SPRINGS DEVELOPMENT**

Type of Use	Size/Scope	Annual Revenue
Retail Area	Approximately 146,000 sq. ft.	\$7.5 to \$10 million
Age Restricted Residences	50 Units	\$1 to \$1.25 million
Townhouses	80 units.	\$1.5 to \$2 million
CC Retirement Facility	362 ILU (60% Couples)	\$20 to \$25 million
Hospitality	80 Rooms (7K sq. ft. mtg. space)	\$1.75 to \$2.25 million

**TABLE 3:**

**CONSTRUCTION COST ESTIMATES FOR THE PROPOSED CRYSTAL SPRINGS DEVELOPMENT**

	Total Square Feet	Construction Costs
Continuing Care Retirement Community	656,000	\$105 million
Townhouses	160,000	\$20 million
Inn & Spa	67,000	\$14 million
Retail and Food Market	146,000	\$13 million
Wellness House	5,000	\$750,000
Other (Common Area + Infrastructure)	n.a.	\$10.5 million
<b>Total</b>	<b>1,034,000</b>	<b>\$163.25 million</b>

**TABLE 4:**

**ASSUMPTIONS FOR RETAIL AND HOSPITALITY OPERATIONS  
OF THE PROPOSED CRYSTAL SPRINGS DEVELOPMENT**

<b>Retail/Hospitality Operations</b>			
	<b>Square Feet</b>	<b>Square Feet per Worker</b>	<b>Number of Workers</b>
Grocery Store	48,000	2,000	24
Food Service	46,000	200	230
Other Retail (Dry Goods)	46,000	500	92
Inn and Spa	62,000	1,250	50
Total Retail Workers			396

**TABLE 5:**

**ADDITIONAL ASSUMPTIONS FOR THE PROPOSED CRYSTAL SPRINGS DEVELOPMENT**

<b>Activity</b>	<b>Units</b>	<b>Per Unit Income</b>	<b>Total Income</b>
CCRC Operations	200 Workers (FTE)	\$62,500 Per Worker	\$9,687,500 Annually
Residential Units	492 Total Units (120 eq. units)	\$86,896 Per Household	\$42,752,832 Annually

**NOTES:**

1. The 200 FTEs used in the analysis represent a head count of approximately 350
2. It should be noted that not all CCRC households are “equivalent units” to households elsewhere in the city. There are 362 age-restricted units in the total count that will require a reduced amount of public services than regular households. The cost-benefit analysis conducted treats these 362 units as 120 “equivalent units,” bringing the total comparable household count to 250.
3. 155 of the workers for CCRC operations is FTE for Phase I only and the \$62,500 income per worker includes benefits.

### **Calculating the Cost of City Services for the Proposed Development**

To determine the cost of services to be provided to the proposed Crystal Springs Development by the City of Annapolis, the BEACON team used the City’s Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2015 as the basis of its calculations. Based on the data provided in this report, the total cost of services for the entire City is summarized in Table 6, on page 6.

To determine the share of these costs for the proposed Crystal Springs Development, the BEACON team calculated Household Equivalencies using the number of people that are estimated to be living and working at this location, based on the assumptions from Tables 1 through 4 on pages 2 through 5. These calculations use a methodology similar to that used for determining equivalent dwelling units (EDU) for water and sewer consumption estimates.

**TABLE 6:**  
**TOTAL COST OF SERVICES FOR THE CITY OF ANNAPOLIS**

<b>Activity</b>	<b>Total Costs</b>
General Government	\$18,601,875
Public safety	\$39,413,113
Community Services	\$6,452,677
Public Works	\$8,253,040
Water	\$5,387,428
Sewer	\$7,411,281
Garbage	\$2,088,024
<b>TOTAL</b>	<b>\$87,607,438</b>

With 250 households and close to 500 workers occupying slightly over one million square feet, the BEACON team's calculations yield 350 Household Equivalencies. With 15,781 households and 21,750 people in the workforce, the Household Equivalency for the entire City of Annapolis is 20,131, giving Crystal Springs a factor of 0.0174 (1.74%) of the City's total (when fully operational). The total cost of public services excluding water, sewer, and garbage is of \$72,720,705. Using the 1.74% basis, Crystal Springs' share of these costs would be \$1,265,340. However, Crystal Springs will have its own security service and guarded entry buildings. Therefore, the proposed development will not require the same amount of public safety services per household as residents of other areas of the City. In addition, the health center component of the proposed development will have a full nursing staff and a 24-hour call system. For these reasons, the public safety cost share of Crystal Springs is discounted by a factor of 0.5, bringing it to \$342,894 and bringing the adjusted share of public services cost to \$922,446.

It should be noted that this \$922,446 number assumes that total public service costs increase in a strictly linear fashion as each new household is added to the City. In reality, the actual added costs of public services for new developments are not linear. Service costs increase in steps as certain system wide thresholds are reached over time. These thresholds are reached, not because of a single development, but because of general growth in the community. A more appropriate allocation would use 50% of the calculated cost share at the beginning of the project, escalating to 75% over time as the project is fully developed and operational. The BEACON team has chosen the more conservative 75% allocation yielding a final public service cost estimate of **\$691,835**.

Please note that water, sewer, and garbage costs were kept out of this calculation because garbage service will not be provided by the City and water and sewer services will be paid for by fees. The assumption is that the fees will cover the costs. In fact, based on the City's Comprehensive Annual Financial Report for the Fiscal Year Ended June 30, 2015, water and sewer service funds are showing operational surpluses where the per unit fee charged exceeds the cost of providing per unit of service. Finally, it is noted that as part of the proposed development, there will be substantial (\$5,000,000+) hookup fee payments (over \$5 Million).

#### **Estimating the Economic, Employment, and Fiscal Benefits of the Proposed Development**

To estimate the economic, employment, and fiscal benefits that will be derived by the City of Annapolis from the proposed Crystal Springs Development, the BEACON team used the IMPLAN software from the Minnesota IMPLAN Group. As IMPLAN model inputs, the team utilized the data and assumptions presented in Tables 1 through 4 in pages 2 through 5. Based on this analysis, the total annual economic impact of the operations of the proposed development for the City of Annapolis is estimated to be **\$231 million**, with an annual fiscal impact of **\$1.8 million**. The development will also support a total of **1,399** jobs. In addition, the hospitality component of the development is estimated to yield **\$380,000** hospitality taxes annually, bringing the total annual fiscal benefit to **\$2.18 million**.

#### **Estimating the Net (Cost) or Benefit of the Proposed Development to the City of Annapolis**

Based on a total annual cost of \$691,835 and an annual fiscal benefit of nearly \$2.2 million, the BEACON team estimates the net annual benefit of the proposed Crystal Springs Development to the City of Annapolis to be slightly under **\$1.5 million**.

### **Additional Benefits of the Proposed Development to the City of Annapolis**

In addition to the annual operational impacts, the proposed development will deliver economic, employment, and fiscal benefits to the City of Annapolis during its construction phase. These benefits are estimated as follows:

- Economic Impact:     \$399 million
- Fiscal Impact         \$1.32 million
- Jobs Supported         1,510

Please note that the total fiscal impact of the construction phase is lower than the annual fiscal impact due to a higher level of leakage of activity to the County and to other areas in the state.

### **Market Impact of the Proposed Development on Retail Activities in Annapolis**

Based on the retail activity assumptions presented in Tables 1 and 3 (on pages 2 and 4), and based on the detailed market profile information (from ESRI) presented in Appendix A, the BEACON team estimates that, in a five year period, less than 20% of the retail activity at the Proposed Crystal Springs Development will be coming from the competing establishments in the six nearby retail zones. These zones, depicted in Map 2 on page 9, are:

- Forest Drive Zone
- Downtown Zone
- Eastport Zone
- West Annapolis Zone
- Outer West Street Zone
- Inner West Street Zone

While it is very difficult to estimate specific market share shifts by locality or by category, the BEACON team further estimates that the expected total market growth rate of over 2% per annum will, over five years, more than accommodate the expected medium or long-term market share impacts of the retail activities at the proposed development on the other five zones, negating any potential harm to existing establishments in the market.

## **Detailed Analysis of the Retail Profiles and Retail Potentials of the Six Zones**

The retail profiles of each of the six zones examined are presented in Figures 1 through 6 in the following pages. For each zone, a series of quadrangular boxes were created to cover the zone area depicted in Map 1. Then, a geographic center of gravity (using drive times on existing streets) for each zone was defined. Using these centers of gravity, drive time impact zones of one, three, and five minutes were examined. Since the five minute drive time yielded the most comprehensive coverage of the competing zones in each case, the competitive impact analysis was based on those figures. (Note: The one and three minute drive time data figures can be seen in the appendix section of the report). In Figures 1 through 6, Supply (retail sales) is the estimates of sales to consumers by existing establishments in each zone. Demand (retail potential) is the estimates of the expected amount spent by consumers at these retail establishments. Supply and demand estimates are in current dollars. The Leakage/Surplus Factor presents a snapshot of retail opportunity. This is a measure of the relationship between supply and demand that ranges from +100 (total leakage) to -100 (total surplus). A positive value represents “leakage” of retail opportunity outside the trade area. A negative value represents a surplus of retail sales, a market where customers are drawn in from outside the trade area. The Retail Gap represents the difference between Retail Potential and Retail Sales. ESRI, the data provider used for this analysis, uses the North American Industry Classification System (NAICS) to classify businesses by their primary type of economic activity. Retail establishments are classified into 27 industry groups in the Retail Trade sector, as well as four industry groups within the Food Services & Drinking Establishments subsector. Additional retail profile detail, with comprehensive sales and purchase estimates, as well as very detailed retail market potential data for each zone can be seen in the Appendices section of this report.

## MAP 2:

### The Five Annapolis Retail Zones Examined

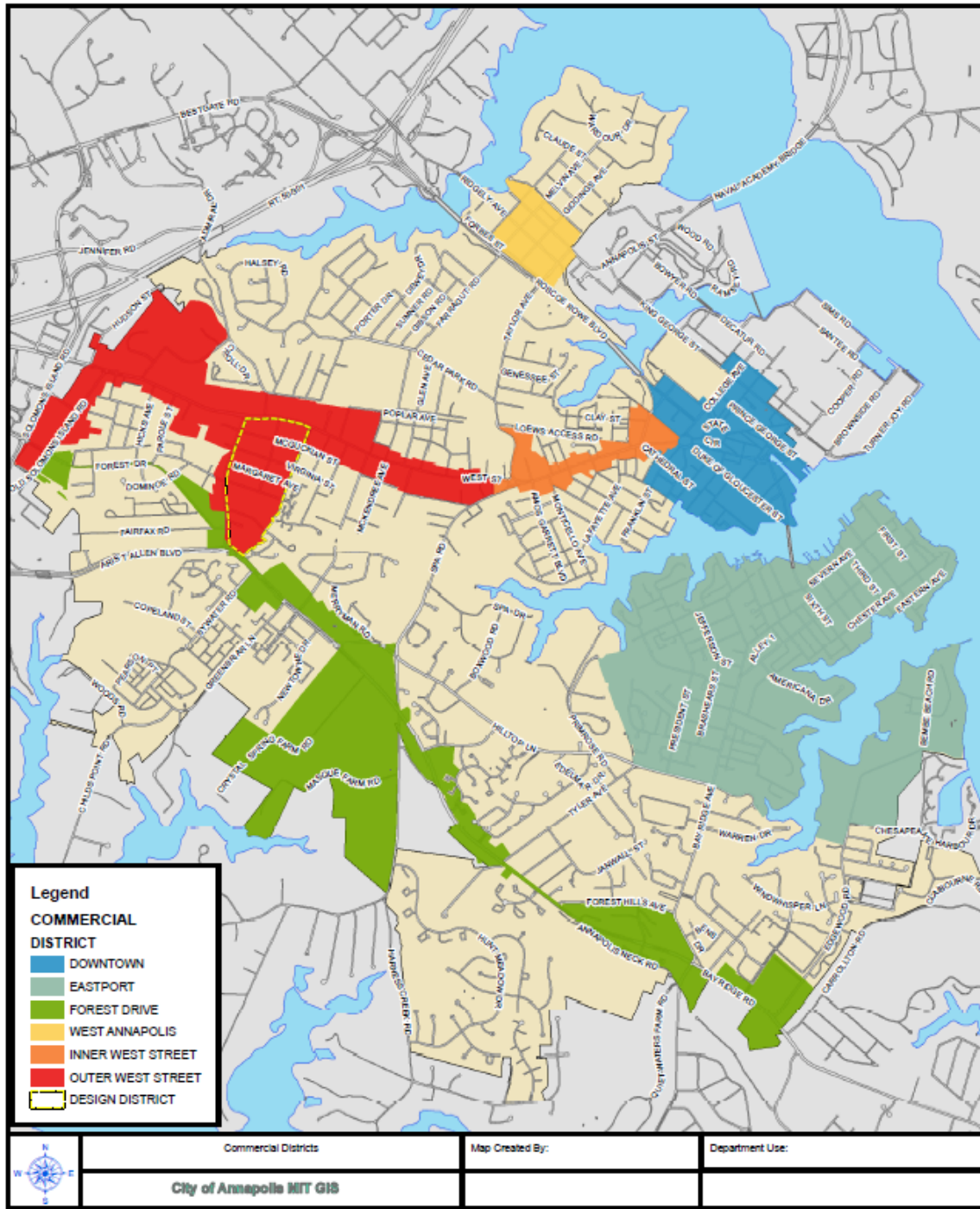
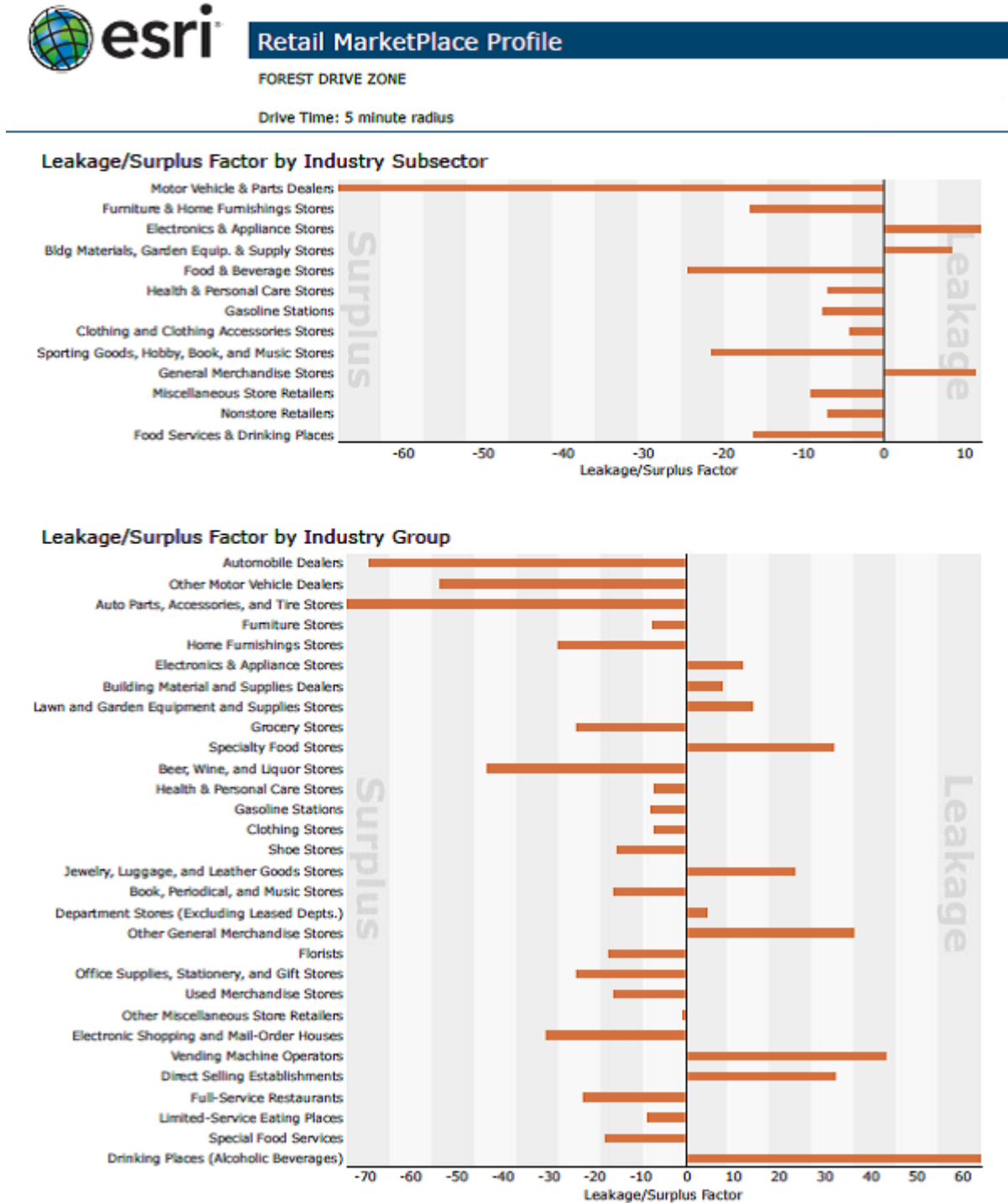


FIGURE 1:

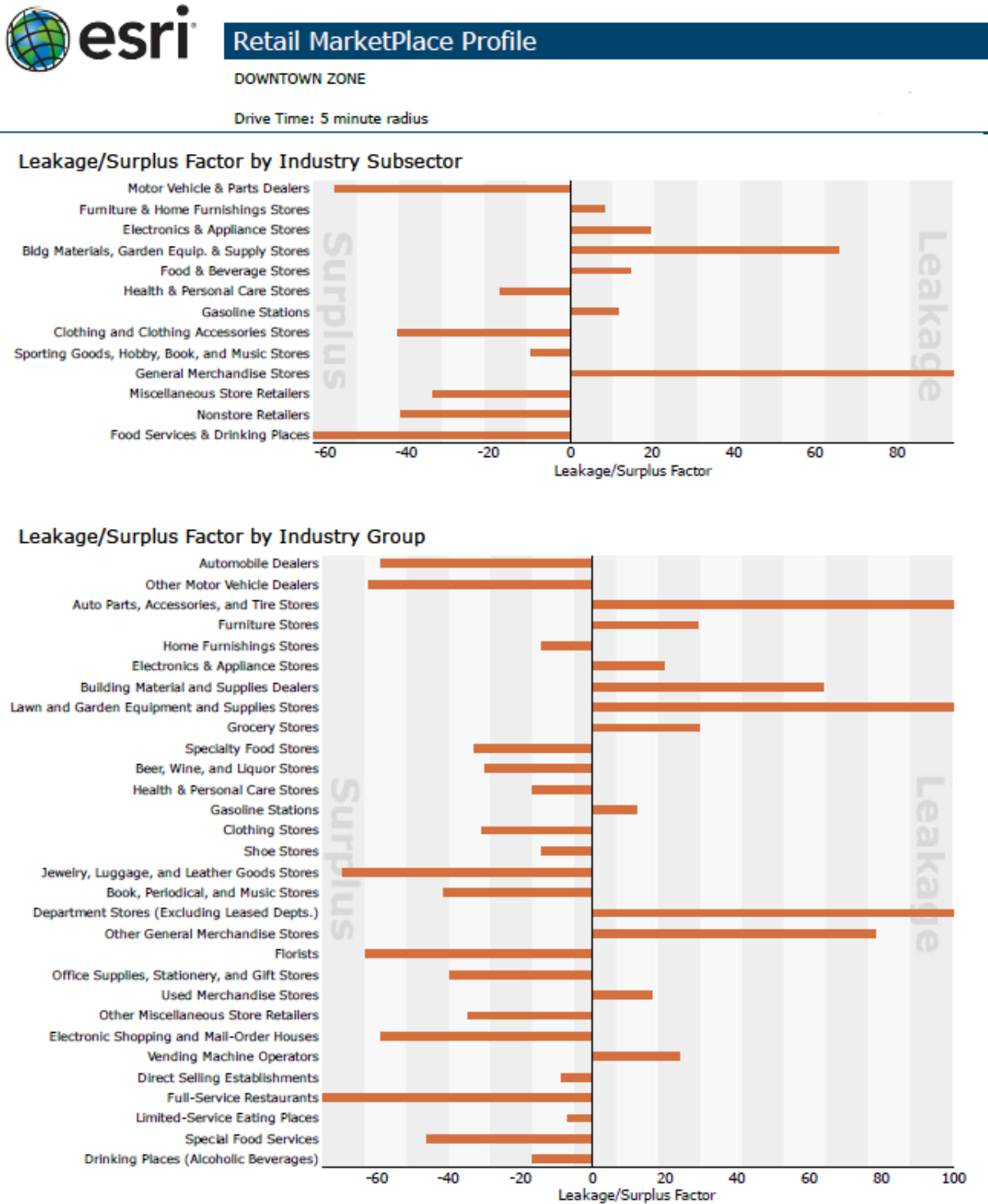
The Forest Drive Zone



Source: Esri and Infogroup. Retail MarketPlace 2016 Release 1 (2015 data in 2016 geography) Copyright 2016 Infogroup, Inc. All rights reserved.

FIGURE 2:

The Downtown Zone



Source: Esri and Infogroup. Retail MarketPlace 2016 Release 1 (2015 data in 2016 geography) Copyright 2016 Infogroup, Inc. All rights reserved.

FIGURE 3:

## The Eastport Zone



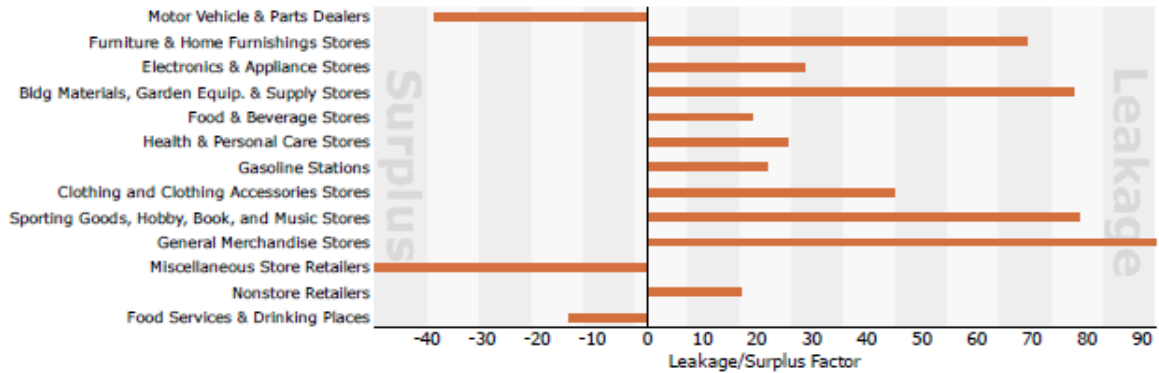
esri

### Retail MarketPlace Profile

EASTPORT ZONE

Drive Time: 5 minute radius

#### Leakage/Surplus Factor by Industry Subsector



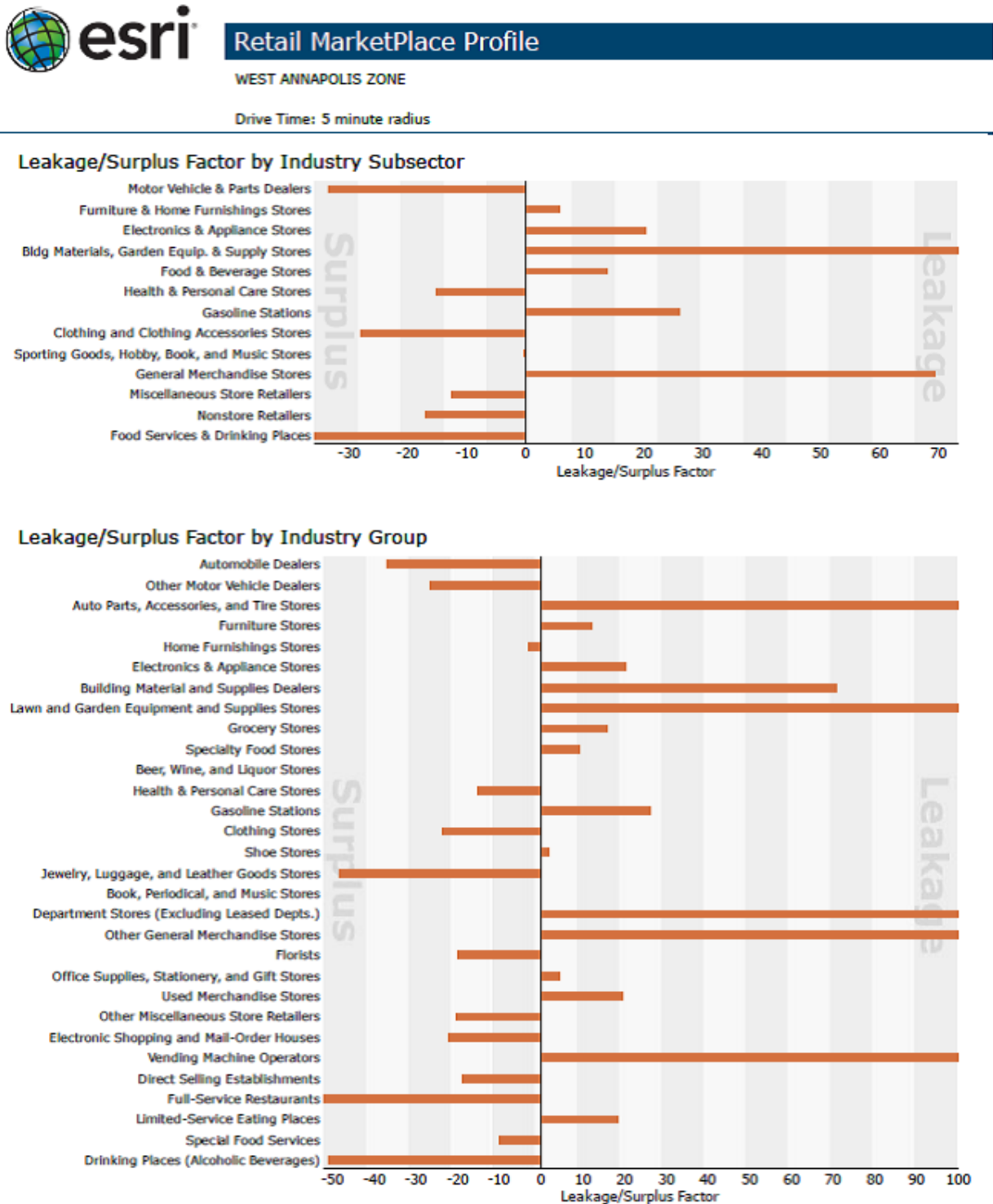
#### Leakage/Surplus Factor by Industry Group



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FIGURE 4:

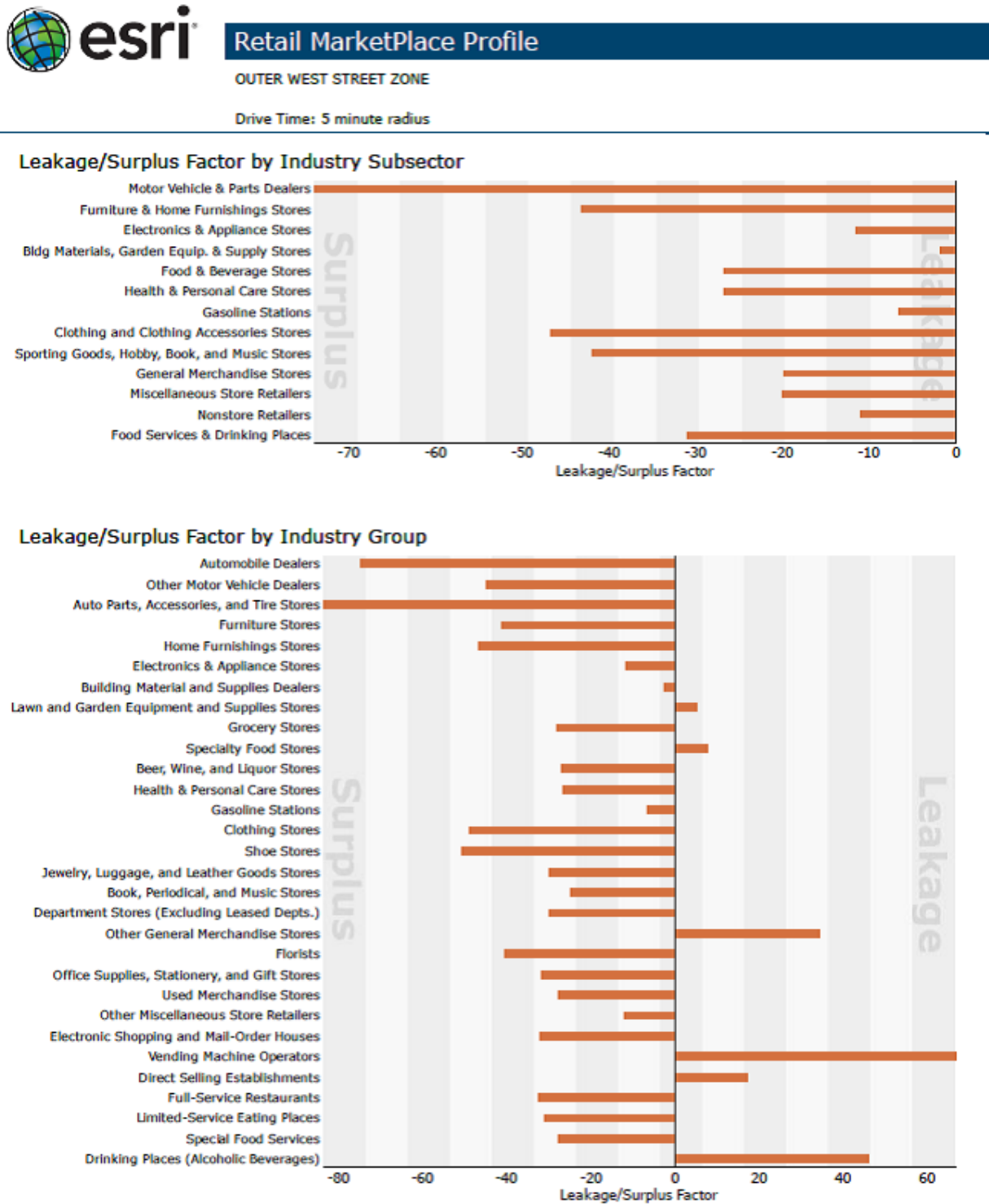
The West Annapolis Zone



Source: Esri and Infogroup. Retail MarketPlace 2016 Release 1 (2015 data in 2016 geography) Copyright 2016 Infogroup, Inc. All rights reserved.

FIGURE 5:

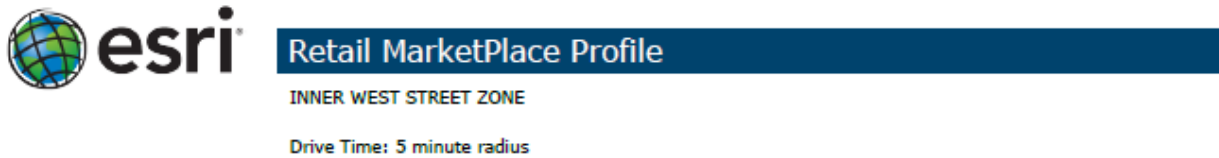
The Outer West Street Zone



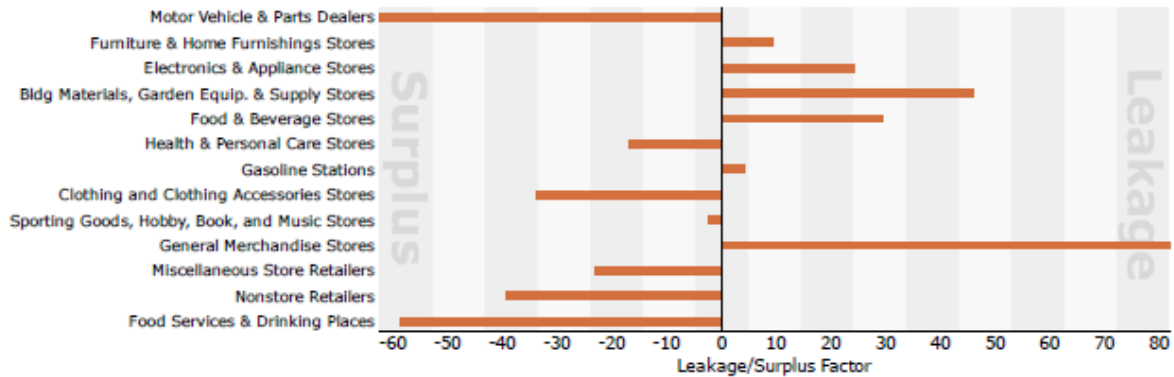
Source: Esri and Infogroup. Retail MarketPlace 2016 Release 1 (2015 data in 2016 geography) Copyright 2016 Infogroup, Inc. All rights reserved.

FIGURE 6:

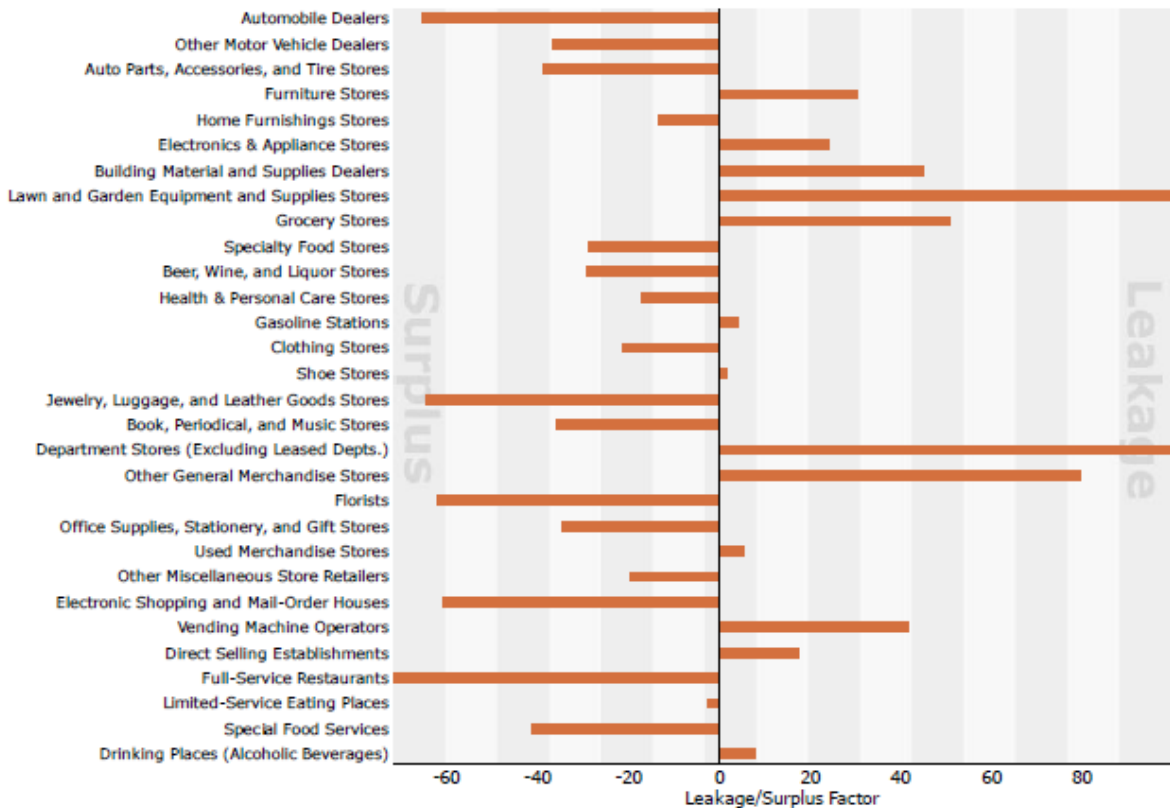
The Inner West Street Zone



Leakage/Surplus Factor by Industry Subsector



Leakage/Surplus Factor by Industry Group



Source: Esri and Infogroup. Retail MarketPlace 2016 Release 1 (2015 data in 2016 geography) Copyright 2016 Infogroup, Inc. All rights reserved.

The proposed Crystal Springs Development will be in the Forest Drive Zone (Figure 1). A careful analysis of data shows that there is significant market opportunity in a number of the industry subsectors and industry groups in this zone. In particular, Electronics and Appliance Stores, General Merchandise Stores, Specialty Food Stores, High End Specialty (Jewelry, Leather Goods, etc.) Stores, and Drinking Places (Bars) offer the greatest potential. On the other end of the spectrum, stores in the automotive sector, furniture stores, sporting goods stores, book and music stores, non-specialty food stores and sit-down restaurants might face (or impose) competitive pressures given the portfolio of stores in the five other zones nearby. However, with as many as 1,000 residents and workers on location on a daily basis, there will be a captive demand for an on-site restaurant. In addition, a combination food retailer and food service operation would be well suited for this location. Finally, the developers of Crystal Springs have stated that a letter of intent exists with a national high end grocery store to occupy the envisioned market at Crystal Spring. The prospective operator has conducted its own independent market analysis and concludes that the market for such a grocery market is strong at this location.

To further analyze the market potential and the market impact of the various activities at the proposed development, the BEACON team has examined the retail market potential in the proposed Crystal Springs Development and compared it to the retail potential of the entirety of the City of Annapolis market (see Appendices A10- through A13). In-depth comparisons were made for specific activity sectors such as the Health and Beauty Market, the Restaurant Market, and the Sports and Leisure Market (see Appendices A14 through A19). These analyses confirmed the existence of significant market potential in the categories of Electronics and Appliance Stores, General Merchandise Stores, Specialty Food Stores, High End Specialty (Jewelry, Leather Goods, etc.) Stores, and Drinking Places (Bars). These comparisons indicate that the competitive impact of new entrants in the proposed development will be low in the larger market but significant in the Forest Drive Zone. The natural market selection processes utilized by businesses making location decisions will, more than likely, make this potential impact unlikely. A business would not want to lease space in close proximity to an established competitor. In addition, the data in these appendices can also be used to guide the developers in seeking establishments with better market potential and lower competitive pressure. Finally, the BEACON team examined additional data on Household Budget Expenditures, House and Home Expenditures, Medical Expenditures, and Recreation Expenditures (Appendices A20 through A23) for the market impact zone of the proposed development. Detailed Retail Market Profiles and Retail Market Potentials for each of the six zones can be seen in Appendices A24 through A35.

Based on these analyses, the BEACON team estimates that the Proposed Crystal Springs Development will represent less than 1% of the total retail activity in the market study area and will generate retail sales of less than 2% of the total City of Annapolis retail sales. Without the predicted 2% annual growth rate in the market, the competitive impact of retail activities at the proposed development will be low in most activity sectors and moderate in a few sectors. Clearly, a specific retail establishment in close proximity to the proposed development might feel a bigger market share impact from a similar establishment launched at Crystal Springs but such impacts would be impossible to quantify at this stage of the process.

Please note that the Downtown Zone has a unique characteristic. This zone is primarily a visitor destination. The proximity of the State Government activities, and the Naval Academy pose particular challenges for the analysis of the Retail market data. In traditional retail market profile analysis, the golden rule involves analyzing the market demand for various product and service categories followed by the demand for the same categories in the identified geography. These numbers are then used to determine the “Retail Gap” for each category. If the retail gap is a positive number, then there is room in that geography for more supply through expanded offerings or new entrants. If the gap is a negative number, then there is more supply than demand and the establishments are in competition for customers. Also, where there is a gap, buyers go outside the geography or go online to fill their needs and wants. When the gap is negative, the establishments must attract customers from outside that geography. This market phenomenon is also measured by the “Leakage/Surplus Factor.” If this factor is low, the retail market is in balance. If it is high either in the positive or in the negative territory, market forces, sooner or later will force a change towards equilibrium. All of these analyses are based on the assumption that most of the retail supply in a locality exists to serve the needs and wants of residents in three contiguous geographies (in distance or drive time) of the chosen area. This, indeed, is the case for the other five zones in the study area. However, in the case of Downtown Annapolis, a number of factors make such an analysis difficult to perform. The seasonality of the Legislative Session, the Summer Tourism season, the proximity of the Naval Academy, and the higher concentration of destination (want) type of retail rather than ordinary (need) type of retail in the downtown area makes the use of a “Leakage/Surplus Factor” analysis somewhat challenging. So, for the downtown zone, a qualitative analysis of the retail profile was used to further validate the findings from the quantitative analysis presented in Figure 2 (page 11). This additional analysis indicates that competition from any of the other five zones, or from the proposed development, would not be the main concern. Cost of retail spaces, parking availability, visitor counts, weather factors, and other macro-economic factors such as recessions and recovery periods would have a much higher impact on the retail operations in this zone.